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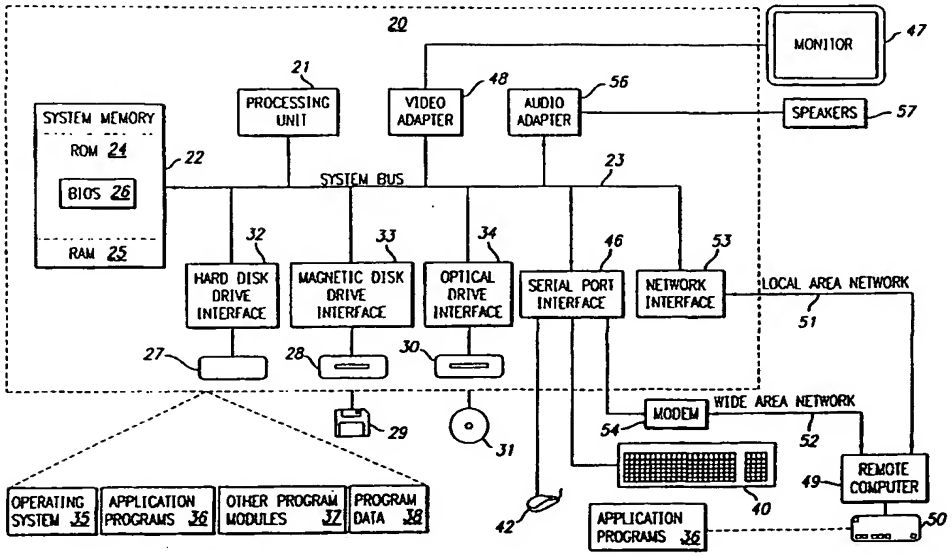
(54) Title: METHOD FOR NETWORKING DATA AND CONTENT MANAGEMENT



(57) Abstract: An integrated information and data management system serves to collect and link disparate data, reduce redundant data entry, and intelligently distribute data across the system to proper locations and/or users. The data management system validates data upon entry into the management system against pre-defined criteria or previously entered data, identifies discrepancies in the data, and notifies the appropriate users of such. Logical structures intelligently sort, filter, and disseminate data. Information entered from different sources is collected, validated, checked for discrepancies, and routed to the appropriate destinations that may receive this data in another form, such as stand-alone reports. Data is input and reviewed by the relevant specialists to reduce the chance of errors. Automation of the management system speeds the process of disseminating information and increases efficiency.

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METHOD FOR NETWORKING DATA AND CONTENT MANAGEMENT

Field of the Invention

This invention relates generally to a data management methodology and, more particularly, to a method for networking and integrating information and data management into a comprehensive workflow management system.

Background of the Invention

Many businesses today, including the motion picture and television production practice, do not offer any acceptable system for automated workflow procedures. Most businesses are mainly driven by paper transfers, couriers, and individual custom solutions using generic off-the-shelf applications such as Microsoft Word and Excel. For example, current practice in motion picture and television production involves non-standard and non-uniform methods of collecting and entering data that are used to track all aspects of the production process. Data is most often entered and saved in paper form that is then collected, stored and archived at the end of the production. Different units of the production manage their information separately in a non-cohesive and non-standard manner. Currently, there ARE no methods that manage all aspects of production in an integrated and cohesive, automated system.

Prior to the advent of digital technologies, filmmaking was a very linear process. Filmmaking was a photochemical, mechanical, analog process, that had to be sequential. A first task had to be completed before a second task begun. In order to compress a schedule, only a part of that process could be compressed, sometimes at the expense of another aspect. However, the digital world now allows for multi-tasking. Live action components of an effect can be shot at one location, while CGI (computer-generated images) are created simultaneously in a facility located elsewhere. Thus, physically separate events can now be produced "in parallel" (multi-tasked) rather than sequentially.

The programs that are in the market today for budgeting, accounting, scheduling, information reporting, and the like are all designed as stand alone items that are incapable of sufficient networking and/or interconnectivity. For example, current budgeting software is not capable of integration with accounting or scheduling programs. Unfortunately, in reality, deviations in budgeting and/or scheduling often do affect and interact with accounting concerns, and vice versa. There is a continuing need for greater interconnectivity and networking in information and data management. Currently, not only is the collection and storage of this data done manually via paper, the data is also being stored in isolation. Consequently, the sharing of

this information and data is not an automated process. There is no database or data repository, either centrally or locally, that individual users and departments can access. It is with respect to these considerations and others that the present invention has been made.

Accordingly, those skilled in the art have long recognized the need for a method for data management which provides for the collection, dissemination, and manipulation of data, by any number of users, in a quick, efficient, and secure manner without regard to either the location of the data and without regard to time constraints.

Summary of the Invention

Briefly and in general terms, the present invention resolves the above and other problems by providing a preferred methodology that utilizes a global broadband network which serves to collect and link disparate data, eliminate redundant data entry and distribute data with intelligence across the system to various locations and/or users.

A preferred method of the present invention is provides for gathering data, manipulating data, and efficiently disseminating data through a meshed network. The meshed network preferably include data collection nodes and at least one transmission/reception medium. Preferably, at least one data collection node is positioned at a remote location. A preferred method includes collecting data from at least one remotely located data collection node in the meshed network and storing said data in at least one other remotely located node in the network; validating data upon entry into a data collection node of the network; checking data entered from different remotely located nodes in the network for discrepancies and notifying appropriate users in the network; intelligently sorting, filtering, and linking data; and distributing data across the network to at least one remote location, wherein at least one remotely located data collection node is nomadic.

In a preferred method of the present invention, the meshed network is a private, high security network. In another aspect of a preferred method, the meshed network is a global broadband network. Preferably, the criteria for distributing data across the network to at least one remote location is selected from a group consisting of, but not limited to, user identification, hardware identification, data clearance level, and data release authority. In one preferred method, the data managed by the network is selected from a group consisting of information, text, voice, audio, video, images, and their digital counter parts.

Preferably, the transmission/reception medium of the meshed network of the present invention includes at least one satellite. In one preferred method, the data is collected and distributed at least partially by at least one transmission/reception medium selected from a group consisting of fiber optic cables, modems, cable modems, cable routers, digital subscriber lines (DSL), asymmetrical digital subscriber lines (ADSL), T1 (or fractions thereof), T2 (or fractions thereof), T3 (or fractions thereof), local area networks (LAN), wide area networks (WAN), microwave networks, line of sight lasers, intranets, and the Internet. In another preferred method, the data is collected and distributed by a combination of transmission/reception mediums selected from a group consisting of fiber optic cables, modems, cable modems, cable routers, digital subscriber lines (DSL), asymmetrical digital subscriber lines (ADSL), T1 (or fractions thereof), T2 (or fractions thereof), T3 (or fractions thereof), local area networks (LAN), wide area networks (WAN), microwave networks, line of sight lasers, intranets, and the Internet.

In one method of the present invention, the data managed by the network is selected from a group consisting of film and television production, pre-production, and post-production data. In another method of the present invention, the data managed by the network is medical related data. Preferably, the network utilizes a browser based interface with at least one remote location for standardization across platforms. In one preferred method of the present invention, the network includes broadband satellite links for transmitting text, data, and still and moving images at high-definition and standard definition resolutions.

One preferred method of the present invention provides collaborative business efforts across a global meshed network of data collection nodes, where at least one data collection node is positioned at a remote location. Preferably, the method includes gathering data from at least one collection node and storing data within at least one other collection node, wherein at least one or the other of the collection nodes is positioned at a remote location; manipulating data within at least one collection node; and disseminating data from at least one collection node to at least one other collection node, wherein at least one or the other of the collection nodes is positioned at a remote location, and wherein at least one data collection node is nomadic. In a preferred method of the present invention, the meshed network is a private, high security network. In another aspect of a preferred method, the meshed network is a global broadband network.

Another preferred method of the present invention provides collaborative business efforts through rental of a global meshed network that includes at least one remote location. A preferred method includes providing a global broadband network; providing data collection capability, wherein data is collected from at least one remote location in the meshed network and stored in another location in the network; providing data validation capability, wherein data is validated upon entry into the network; providing data checking capability, wherein data entered from different locations in the network is checked for discrepancies; providing intelligent sorting, filtering, and linking of data; and providing data distribution across the network to at least one remote locations. In a preferred method of the present invention, the meshed network is a private, high security network. In another aspect of a preferred method, the meshed network is a global broadband network. In still another aspect of a preferred method at least one remote location in the network is nomadic.

Yet another preferred method of the present invention provides bundled telecommunication services to remote locations within a global, meshed network of nodes for collaborative business efforts. A preferred method includes gathering data from at least one node positioned at a remote location; manipulating data within at least one node; and disseminating data from at least one node to at least one other node, wherein at least one or the other of the nodes is positioned at a remote location, and wherein at least one node is nomadic. In a preferred method of the present invention, the meshed network is a private, high security network. In another aspect of a preferred method, the meshed network is a global broadband network.

Still another preferred method of the present invention provides for the building of dependencies within reported data in a meshed network which includes remote locations, wherein the building of dependencies providing for collaborative business efforts. A preferred method includes intelligent scanning incoming data from a remote location in the network; sorting and analyzing incoming data to create distinct, processed outgoing data; and creating customized data linkages, wherein data in the network dynamically builds dependencies to other data within the network, and wherein at least one remote location in the network is nomadic. In a preferred method of the present invention, the meshed network is a private, high security network. In another aspect of a preferred method, the meshed network is a global broadband network. In still another aspect of a preferred method at least one remote location in the network is nomadic.

The present invention manages a collection node that is synchronized with local collection nodes. The individual departments input their data locally and the data is systematically updated to a primary collection node. Once the data is in the primary collection node, the data is extractable by all branches of production that need and are allowed access to the data in an automated fashion that increases efficiency and accuracy. Preferably, some data is global while other data has specific access permission rules attached to it. The present invention utilizes local collection node of the individual departments and synchronizes them with a primary collection node. Users input job-specific information locally and the present invention then disseminates information automatically to the proper people and places.

A preferred embodiment of the present invention provides a turn-key solution methodology which incorporates software and broadband satellite links for distributing data and content (still and moving images, along with text) through a network operated via an easy-to-use browser based interface for standardization across platforms. The present invention transmits information and data on demand at either high-definition or standard definition resolutions, and with full interactive capabilities. Preferably, the present invention utilizes a standard web browser graphical user interface (GUI) in order to maximize productivity and efficiency; however, custom web browsers may also be used. Further, the present invention provides users with accessible and easy to use communications services.

In accordance with other aspects, the present invention relates to a preferred methodology in which the data managed by the network is selected from a group consisting of film and television production, pre-production, and post-production data. In other methodologies of the present invention, by way of example only, the data managed by the system is selected from a group consisting of medical related data, tele-medicine, oil and gas exploration, international construction, disaster relief, and distance learning/education. Preferably, the network utilizes a browser based interface with the computing stations for standardization across platforms. A preferred methodology includes broadband satellite links for transmitting text, data, and still and moving images at high-definition and standard definition resolutions.

In one preferred methodology of the present invention, there is created an automated system for managing information generated before, during, and after the television and film production process, to further provide a method for interconnecting the production data into a comprehensive workflow data management system. The present invention automates the process

of creating, managing, and tracking production data through the entire process of pre-production, production, and post-production. The business of film production is disparate in nature, with information and data tending to be spread over a wide geographical area and residing in multiple locations. Through methods of time stamping and synchronization, the present invention prevents the loss and unnecessary duplication of data as well as the flagging of potential discrepancies in data from multiple input sources.

One embodiment of the present invention is directed towards a method using a novel converged digital network that preferably utilizes geo-stationary satellites. Traditionally, satellites have been very complicated, user-unfriendly, arcane infrastructures requiring highly specialized knowledge. However, the network infrastructure of the present invention utilizes redesigned user-friendly satellite distribution technology, while also preferably interfacing with existing fiber (or non-fiber) links. The present invention is capable of managing and transmitting all types of data including digital film dailies, CGI images, edited sequences, payroll or production management data. One desirable benefit of the present invention, is that it facilitates the collaboration of business efforts. In the film production embodiment, everything in pre-production, production, and post-production is interconnected and interdependent. Moreover, the present invention is applicable to the communications business at large, including the world wide web, network infrastructures, TCP/IP-type protocol, and multimedia data sharing.

In accordance with still other aspects, the present invention relates to a process for networked data management that gathers disparate data, reduces redundant data entry, and efficiently disseminates data. The process includes collecting data from a plurality of computing stations in a network and storing the data in another computing station in the network, validating data upon entry into the network against pre-defined criteria or previously entered data, checking the data entered from different computing stations in the network for discrepancies and notifying appropriate users at their computing stations in the network of such events, intelligently sorting, filtering, and linking data in accordance with logical structures, and distributing data and derivatives of the data across the network to computing stations and users according to pre-selected criteria. In a preferred process, the pre-selected criteria for distributing data and derivatives of the data across the network to computing stations and users is selected from a group consisting of user identification, hardware identification, data clearance level, and data release authority.

Other features and advantages of the present invention will become apparent from the following detailed description, taken in conjunction with the accompanying drawings, which illustrate by way of example, the features of the present invention.

Brief Description of the Drawings

FIGURE 1 illustrates a perspective view of a data transmission system, in accordance with the methods of the present invention, including a satellite that links a visual effects facility, a post-production facility, a studio, an operations center, and multiple remote locations;

FIGURE 2 illustrates a close-up view of the data transmission system of FIGURE 1 specifically focusing on the remote locations network interface, which includes an automatic antenna system, a mobile satellite gateway, and associated devices in the meshed network interface for use in accordance with the methods of the present invention;

FIGURE 3 illustrates a relational flow of a collection mode, script, script breakdown, schedule, call sheets, script supervisor report, camera report, sound report, VRT report, flex file, accounting, purchase orders, daily report, production report, dailies and visual EFX in accordance with the present invention;

FIGURE 4 illustrates a relational diagram of a general purpose computer system for implementing methods of the present invention;

FIGURE 5 illustrates an exemplary operational matrix containing rule sets governing a user's accessibility to specific data in practicing one embodiment of the present invention; and

FIGURE 6 illustrates an exemplary sample of annotated video clip data for use in collaborative viewing in practicing the methods of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention relates to a preferred methodology for providing an efficient system and method for collecting, manipulating, and disseminating data by any number of users, in a quick, secure, and efficient manner without regard to location and time constraints. This methodology utilizes a global broadband network to support next generation nomadic film production. This support includes the transport of digital images and sound, as well as online editing and collaboration. High speed connections and superior quality of service between

wireless and wired locations make this broadband network methodology able to perform these abilities.

Referring now to the drawings, wherein like reference numerals denote like or corresponding parts throughout the drawings, and more particularly to FIGURES 1-3 there is shown one preferred methodology using a global broadband network 10, in accordance with the present invention, that serves to collect and link disparate data, reduce redundant data entry, and intelligently distribute data across the network 10 to proper locations and/or users.

The broadband network 10 is the most cost-efficient and reliable form of transport and data management. Preferably, a methodology uses a network 10 that utilizes global fiber (backbone and decentralized network web redundancy), satellite (point to multipoint), metropolitan wireless (point to point), and global data center optimization for customers of the preferred methodology. The broadband network 10 used with the methodology provides distinct advantages in many areas such as nomadic networking. These advantages include the ability to provide known costs to customers, end-to-end support (including transport, set-up, monitoring), global coverage that is easily transportable for rapid deployment, and multi-protocol support that integrates into existing networks.

The preferred methodology of the present invention provides desired elements in relation to data collection, manipulation, and distribution in general, as well as to next generation nomadic film production. These desirable aspects of the present methodology include, by way of example, and not by way of limitation, a global network 10, a collaborative application suite, managed service, and a service rental model. The global network 10 preferably includes a flexible networking infrastructure which utilizes a satellite and terrestrial network assembly. The satellite portion of the network assembly preferably includes one or more satellites in a "reach and response" implementation. Possible system elements of the terrestrial portion of the network assembly include, but are not limited to fiber, line-of-sight laser, microwave, T1 (or greater lines), intranets, and the Internet.

The application suite of a preferred methodology of the present invention allows for collaborative production and communication by providing improved video conferencing "on demand," network telephony, enhanced digital dailies, and a production information system. Due to the high bandwidth provided by the broadband network 10 used with the present methodology,

the network 10 has the communications capability to supply video teleconferencing (preferably at high resolution) "on demand" within a collaboration session. Additionally, a preferred methodology also uses collaborative editing systems for real time collaboration (which currently is generally impossible when people are in different locations). Further, the high bandwidth provided by the broadband network 10 used with the present methodology also supplies network telephony. This is extremely useful in situations where one or more remote locations of the broadband network 10 are in regions that do not have either mobile telephones (e.g., cellular, PCS, CDMA, TDMA, GSM, etc.) or traditional terrestrial-based telephones (land lines). Moreover, the network 10 used with the present methodology allows people involved in the production to be easily accessed by email or other types of data transfer communication methods. Another such communication method on the production site is a general screen announcement banner (e.g., a screen posted announcement "Dailies are at 7 PM tonight").

The high bandwidth (preferably near or above 45Mbps) of the broadband network 10 allows the present methodology to bundle enhanced resolution digital dailies with the video conferencing and telephony. Specifically, the high resolution digital dailies have a video motion signal that is preferably greater than 720 x 480 pixels, more preferably at or greater than1280 x 720 pixels, and most preferably at or greater than 1920 x 1080 pixels. Using the methodology of the present invention, these enhanced digital dailies are transferred to various remote locations within the network 10, thereby eliminating the need for low quality video tapes. In one preferred methodology, access control is added which allows one person (such as the director) to view the enhanced digital dailies first and then to release them for viewing elsewhere. Importantly, the methodology of the present invention, using the broadband network 10, allows the director to view the enhanced digital dailies in high definition, which is a greater resolution than standard video tape is capable of providing. This allows the director (or others) to make more accurate judgments as to the quality and acceptability of the enhanced digital dailies. It should be noted that high resolution is an often misused term that does not have clear associated parameters. However, high definition is a clearly defined term that refers to a video motion signal which is typically between "1280 x 720 pixels" and "1920 x 1080 pixels.

Moreover, a preferred methodology of the present invention allows the enhanced digital dailies to be annotated with notes for specific people. Preferably, these notes are invisible to everyone except the intended recipient. In one preferred methodology, a specific area of a frame

can be marked and commented upon. When the intended recipient views the dailies, the broadband network 10 stops the footage on the frame with the comments. Preferably, additional functionality of the broadband network 10 allows the recipient to respond to the comments. These annotations are preferably stored for future reference. A preferred methodology also allows variations in how the enhanced digital dailies are delivered (e.g., a visual effects 234 house may have the capability to send a first rough version of their work, thus allowing for immediate feedback).

The managed services feature of a preferred methodology of the present invention allows for networked operations, application support, and field support. A preferred methodology is capable of providing operational accessibility and support in the manner usually associated with consolidated, localized operations and services. As a result, the operations, application support, and field support occur in "real time," while reducing or substantially eliminating the lengthy delays typically associated with a network 10 maintaining geographically disparate locations.

In another aspect of a preferred methodology in accordance with the present invention, a unique service rental business model is employed. Currently, their exists a desire in many industries today, such as film production, to utilize a global broadband network 10 for high bandwidth transfer, manipulation, and distribution of data and other types of content (e.g., video, sound, etc.) in rental packages and services that will result in no capital assets at the conclusion of the project. A preferred methodology of the present invention provides these rentable services, without requiring the purchasing of additional software or equipment. Further, the preferred methodology is customizable to meet the specific requirements of individual projects on a case by case basis. Longer term agreements are also contemplated in other preferred methodologies of the present invention.

A preferred methodology connects users at various geographically dispersed locations via a private network that provides a high level of security. However, other preferred global networks 10 with appropriate security may also be used. Since the global network 10 is preferably a private network, data and content are sent back and forth simply and securely. Additional security features of a preferred methodology of the present invention include streaming encryption, digital image file encryption, password authentication, user authentication, hardware authentication, and "need to know" based access control.

A preferred methodology of the present invention validates data upon entry into the global broadband network 10 against pre-defined criteria or previously entered data, identifies discrepancies in the data, and notifies the appropriate users of such. A preferred methodology also includes logical structures to intelligently sort, filter, and disseminate data. Information entered from different sources is collected, validated, checked for discrepancies, and routed to the appropriate destinations that may receive this data in another form, such as stand-alone reports.. A preferred methodology eliminates redundant entries by allowing the data to be input and reviewed by specialists, thus, reducing the chance of errors. Further, the automation of the network 10 speeds the process of disseminating information and increases efficiency.

A preferred methodology maintains a given reporting structure to add intelligent automation to the reporting process. The broadband network 10 pulls information from concurrent reports to create new and unique reports. Each report in the broadband network 10 dynamically builds dependencies to other reports according to pre-defined criteria. Preferably, the standard format of the report is not changed, but the data within the report changes according to its dependencies on other reports in the network 10.

Preferably, the broadband network 10 presents a template or "view" specific to each user and his function. When the user logs onto the broadband network 10, only the information and functions relevant to that user are presented. This provides a secure method of protecting sensitive material since that material is only visible to a user with the proper access level. Further, in some preferred methodologies, certain material is considered "locked" and unavailable to other users until the material is released by a user with the proper authority. There is no indication on the screen of material that a specific user cannot access.

When global changes are made to data, a preferred methodology of the present invention intelligently scans all other data that might be affected by such changes and notifies the appropriate users of the changes and possible problems. Moreover, a preferred methodology allows users to customize linkages between different sets of data for automatic updating when a change occurs to one or more data elements that are in the network 10. The data that the present invention is capable of managing covers a wide range of areas, including but not limited to, information, text, voice, audio, video, images, and their digital counterparts. These different types of data are linkable together to create larger data structures that are also manageable, in turn, by the network 10.

Referring now to FIGURES 1-4, a preferred methodology of the present invention greatly enhances working efficiency by interconnecting the vast flow of data that currently creates a massive amounts of paperwork. Information is input into the network 10 from a plurality of locations. The data is collected, linked, and intelligently distributed across the network 10 to various locations and/or users. Through data compilation, a preferred methodology of the present invention predicts probable outcomes and monitors events for variances. Preferably, physical assets are tracked and auto-correlated. Further, assets are also tracked to other forms of the physical asset, such as digital media. A preferred methodology allows custom grouping of data and supersets of data (which are comprised of smaller data elements) that are assigned custom rule sets.

Preferably, the global broadband network 10 uses individual or departmental specific templates or "views" which incorporate personalized information and functions. When each user logs on, their screen is personalized with user specific pertinent information. Each user sees and/or is capable of manipulating only the data that pertains to their position. Any material that they are not given access to is invisible to them rather than being "greyed out" (viewable as being inaccessible). In this way, the user is not aware of being denied access to functions. Preferably, each user on the global broadband network 10 has their own identity and password. Users are then capable of loading specific data into the global broadband network 10.

As shown in FIGURE 5, in a preferred aspect of a method using the global broadband network 10 of the present invention, access into the network 10 is controlled via an access control matrix 320. Each user identification and password combination is assigned to an access level within this matrix 320. Access level gives users a template that specifies access to each data group within the network 10. After this initial template assignment, the network 10 further customizes access to each data group individually for each user. Data access is further controlled via aging, publishing, and sequential controls. Utilizing aging control, a specified user has access to data in time dependent manner. Thereafter, access is granted with or without restriction. Utilizing publishing control, one or more users must review the data and decide to publish the data before the data is released to other users. Utilizing, sequential control, users with access to a data group are further assigned into access layers. Users of a higher layer must review the data before users of a lower layer may view the same data. The hierarchy of this control is dependent on the number of layers assigned.

As shown in FIGURE 6, in another preferred aspect of a method using the global broadband network 10 of the present invention, has the capability to add audio and visual annotations to selected frames during image sequence playback for collaborative viewing 330. These annotations include both graphical annotations 340 (e.g., circling, marking, arrows, etc.) and textual annotations 350 (e.g., "Look, the boom is in the frame."). Preferably, these annotations are stored for display during later collaborative viewings 330. Real time collaboration capability is also possible. A session controller manages multiple viewing environments and coordinates messages between the various viewers within the session. A viewer establishes a link to the session controller to pass and receive control and annotation data to and from the session controller. The session controller, in turn, relays the data to other viewers in the session. This gives the users the ability to communicate regarding the same image and observe each other's actions. The network 10 also has the ability to further enhance the communication capability by providing video teleconferencing "on demand" along with the collaboration session.

Referring again to FIGURES 1, 2, and 4, the following discussion is intended to provide a brief, general description of a suitable environment in which the invention may be implemented. While preferably the invention runs at least in part on an operating system in conjunction with one or more personal computers (as well as a collection node 94 and a transmission medium), those skilled in the art will recognize that the invention also may be implemented in combination with other program modules. Generally, program modules include routines, programs, components, data structures, etc. Moreover, those skilled in the art will appreciate that the invention may be practiced with other computer system configurations, including hand-held devices (such as PDAs), multiprocessor systems, microprocessor-based or programmable consumer electronic devices, minicomputers, mainframe computers, and the like. The invention may also be practiced in distributed computing environments where tasks are performed by remote processing devices that are linked through a communications network. In a distributed computing environment, program modules may be located in both local and remote memory storage devices.

An exemplary data transmission system 10 used for implementing the methods of the present invention, includes a conventional personal computer 20, including a processing unit 21, a system memory 22, and a system bus 23 that couples the system memory to the processing

unit 21. The system memory 22 includes read only memory (ROM) 24 and random access memory (RAM) 25. A basic input/output system (BIOS) 26, containing the basic routines that help to transfer information between elements within the personal computer 20, such as during start-up, is stored in the ROM 24. A personal computer 20 preferably further includes a hard disk 27, a magnetic disk drive 28, e.g., to read from or write to a removable disk 29, and an optical disk device 30, e.g., for reading a CD-ROM disk 31 or to read from or write to other optical media. Preferably, the hard disk 27, magnetic disk drive 28, and optical disk drive 30 are connected to the system bus 23 by a hard disk drive interface 32, a magnetic disk drive interface 33, and an optical drive interface 34, respectively. The drives and their associated computer-readable media provide non-volatile storage for the personal computer 20. Although the description of computer-readable media above refers to a hard disk, a removable magnetic disk and a CD-ROM disk, it should be appreciated by those skilled in the art that other types of media which are readable by a computer, such as magnetic cassettes, flash memory cards, digital video disks, Bernoulli cartridges, and the like, may also be used in an exemplary operating environment.

A number of program modules may be stored in the drives and RAM 25, including an operating system 35, one or more application programs 36, other program modules, such as an installer program in accordance with an exemplary network embodiment used with the present invention, and program data, such as a configuration database associated with the installer program. The operating system 35 may include a system registry 39. In this embodiment, the invention may reside within the installer program and the configuration database. A user may enter commands and information into the personal computer 20 through a keyboard 40 and pointing device, such as a mouse 42. Other input devices (not shown) may include a microphone, joystick, game pad, satellite dish, scanner, or the like.

These and other input devices are often connected to the processing unit 21 through a serial port interface that is coupled to the system bus, but may not be connected by other interfaces, such as a game port or a universal serial bus (USB). A monitor or other type of display device is also connected to the system bus 23 via an interface, such as a video adapter 48. In addition to the monitor, personal computers typically include other peripheral devices (not shown), such as speakers or printers.

A personal computer 20 preferably operates in a networked environment using logical connections to one or more remote computers, such as remote computer 49, as well as preferably a collection node 94 and a transmission/receiver medium. The remote computer 49 may be a server, a router, a peer device, or other common network node, and typically includes many or all of the elements described relative to a personal computer 20, such as a memory storage device 50. The logical connections described include a local area network (LAN) 51 and a wide are network (WAN) 52. Such networking environments are commonplace in offices, enterprise-wide computer networks, intranets, and the Internet.

When used in a LAN networking environment, a personal computer 20 is preferably connected to the LAN 51 (or a wireless LAN) through a network interface 53. When used in a WAN networking environment, a personal computer 20 typically includes a modem 54 or other connection interface for establishing communications over the WAN 52 (or a wireless WAN), such as the Internet. A modem 54, which may be internal or external, is connected to the system bus 23 via the port interface 46 (including but not limited to serial, USB, or other interface). In a networked environment, program modules depicted relative to a personal computer 20, or portions thereof, may be stored in a remote memory storage device 50. It will be appreciated that the network connections shown are exemplary and other devices that establish a communications link between the computers or other system components may also be used, in accordance with the methods of the present invention.

A computing data management device, such as computing global broadband network 10, typically includes at least some form of computer-readable media. Computer readable media can be any available media that can be accessed by the computing system. By way of example, and not by limitation, computer-readable media might comprise computer storage media and communication media.

Computer storage media includes volatile and nonvolatile, removable and non-removable media implemented in any method or technology for storage of information such as computer readable instructions, data structures, program modules or other data. Computer storage media includes, but is not limited to, RAM, ROM, EEPROM, flash memory, or other memory technology, CD-ROM, digital versatile disks (DVD), or other optical storage, magnetic cassettes, magnetic tape, magnetic disk storage, or other magnetic storage devices, or any other medium

that can be used to store the desired information and that can be accessed by the computing network 10.

Communication media typically embodies computer-readable instructions, data structures, program modules or other data in a modulated data signal such as a carrier wave or other transport mechanism and includes any information delivery media. The term "modulated data signal" means a signal that has one or more of its characteristics set or changed in such a manner as to encode information in the signal. By way of example , and not by limitation, communication media includes wired media such as a wired network or direct-wired connection, and wireless media such as acoustic, RF, infrared, and other wireless media. Combinations of any of the above should also be included within the scope of computer-readable media. Computer-readable media may also be referred to as computer program product.

Referring now again to FIGURES 1 and 2, in one exemplary embodiment of a data transmission system used in accordance with the methods of the present invention, there is shown a completely integrated global broadband network 10 that is specifically tailored for use with film and television production. The following description gives specific detail of this particular embodiment by way of example only, and not by way of limitation. It will be appreciated by those skilled in the art that the global broadband network 10 used with the present invention is readily applicable to many other areas of practice outside of film and television production.

With respect to preferred hardware, and according to one method of the present invention, the global broadband network 10 includes an encoding system at a first location, a VTC system at the first and a second location, a dailies server at the second location, a dailies viewing station, a satellite link, a local network, and a wireless LAN laptop computer. With respect to another preferred methodology, FIGURE 1 illustrates an overview of the hardware in an exemplary, non-limiting, network 10 which includes a transmission/reception medium, such as a satellite 60 (or satellite network), that links a various network sub-systems, including a visual effects facility 62, a post-production facility 64, a studio 66, an operations center 68, and multiple remote locations 70 and 74. In this exemplary network, the remote locations 70 and 74 network interface with the satellite 60 via automatic antenna systems 71 and 75 and mobile satellite gateways 72 and 76. Further, in this exemplary network the visual effects facility 62, studio 66, and operations center 68 are also connected to one another by a terrestrial global fiber network 69. Thus, one preferred hardware embodiment used in a preferred methodology uses satellite

transmissions, terrestrial fiber connections, and local and/or wide area wireless transmissions in a meshed network interface. It will be appreciated by those skilled in the art that the network 10 used with the present invention may also utilize more, less, or different network 10 sub-systems which may or may not be redundantly connected with satellite transmissions and terrestrial fiber connections.

FIGURE 2 illustrates a close-up view of the hardware in an exemplary, non-limiting, network 10 specifically focusing on the remote locations 70 and 74 network interface, which includes an automatic antenna system 71 and 75, a mobile satellite gateway 72 and 76, and associated devices portion of the meshed network interface. In this exemplary, non-limiting, remote locations 72 and 76 network interface, a production office 80 (which preferably includes at least a digital dailies viewing station 81, a production office station 82, and an editing station 83) is connected to a mobile set/location 85 (which preferably includes at least a production manager station 86, a first assistant director station 87, and a production coordinator station 88) via a wireless local area network 90 with integrated IP telephony 92. Additionally, this remote location production office 80 and mobile set/location 85 are connected to the automatic antenna system 71 or 75 and, thus, the main network 10 via a mobile satellite gateway 72 or 76. It will be appreciated by those skilled in the art that the network 10 of the present invention may also utilize more, less, or different associated devices.

Referring again to FIGURE 3, the logical operations of the various methodologies of the present invention are implemented (1) as a sequence of computer implemented steps or program modules running on a computing system and/or (2) as interconnected machine logic circuits or circuit modules within the computing system. The implementation is a matter of choice dependant on the performance requirements of the computing system implementing the invention. Accordingly, the logical operations making up the embodiments of the present invention described herein are referred to variously as operations, structural devices, acts or modules. It will be recognized by one skilled in the art that these operations, structural devices, acts and modules may be implemented in a broadband network 10, in firmware, in special purpose logic, analog circuitry, and any combination thereof without deviating from the spirit and scope of the present invention as recited within the claims attached hereto.

Examples of possible departments and/or users that will input and/or access data from the film and television production methodology of the present invention are described below. A

preferred flow of information to and from these reports (or operational areas) into the global broadband network 10 is shown in FIGURE 3. Although data from one operational area in the global broadband network 10 can affect many other operational areas, the general dependency hierarchy of one preferred methodology is as follows: From the script 100 the script breakdowns 110 are created. From the script breakdowns 110 the schedule 120 is created. From the schedule 120 the call sheet 130 is created. From the call sheet 130 the production report 220 is started, (with additional information from the script 100, camera report 150, and sound reports 160, and gathered department "out times 290" and actor "out times 300" on every member of the production). Finally, from the production report 220 the cost reports 310 are created.

FIGURES 1-3 and the following discussion provide an example of the interactive capabilities of a preferred methodology used on a typical day in the production of a film: The crew walks onto the set with call sheets 130 that were published the night before. Their call sheets 130 were displayed when they called up their individual screens the night before. The call sheet 130 lists the scenes that are to be shot. When the user selects a scene number the script 100 pages appear, so that the next day's work is readable. When in the script 100 view, the user can call up any department's particular breakdown 110 and see, for instance, if the special effects department is planning to use smoke tomorrow. If a certain vehicle is planned to used in a scene, the prop department knows that the interior car prop is needed and the scenic department knows that the dusting machine is needed to dirty up the car. This is especially useful in a situation where the director has an inspiration to include this car into a scene (when it wasn't planned for before) but only notified the vehicle department. The present invention allows information that sometimes now resides only in the primary department to be circulated.

The sets are listed for each scene and by selects that listing, the set breakdowns 110 are pulled up (into the screen in an methodology utilizing a web browser type interface). Therefore the prop department can check if the appliances in the kitchen set are "practical" (i.e. can function) and then realize that they might need to use actual food.

Selecting the location listing (a specific point on the screen in an methodology utilizing a web browser type interface), which is where the set physically exists, brings up a map to the location. The present invention knows the user's information and, therefore, knows the location of the user's home base and generates the correct map accordingly.

Selecting the actor's name generates a "day out of days" breakdown 110 that lists when that character works in the schedule 120 and his final working date. This is important since these days will have been set contractually and to work an actor longer costs the production a lot of money. The director might be planning to grab a few additional close-ups of the actor for another scene and mention this to the script supervisor who could then use the global broadband network 10 to quickly check whether those shots must be taken that day if , for example, it is the actor's final day. (This situation comes up quite often because of the sheer volume of actors in a film.).

Absent the methods of the present invention, paper call sheets have to be given to the crew with a general call time on the front page and then list each person's actual call time on the back. The crew member must look down the list on the back and find his name to ascertain his call. The present invention automatically publishes the user's own call time on the front time. The list of crew and their call times is still accessible, so people can know if a department has a later call and can plan accordingly. The advance schedule is listed and a user can select the scene numbers to bring up the script 100 pages that pertain to what will be shot in the next days.

At the start of each day, individual departments log onto the global broadband network 10 and display their particular breakdowns 110 for that day's scenes. This allows them to double check that they have the material needed for that day. Production wide announcements (such as "Dailies will be 70 minutes long today and will be viewed a half hour after wrap" or "There are new page revisions to be published this afternoon") appear on every department's screen.

Furthermore, absent the present invention, the communication between the shooting crew on location and the production office or individual department offices consists of runners traveling back and forth with paperwork. This creates a very slow stream of data. Therefore, many decisions are made in the field without contacting the production office for reasons of expediency. This leads to problems like purchases being made without issued purchase orders 200 that later get lost in the system and cause inadvertent overages. The various departments can also have their central offices in locations other than the production office. A preferred methodology allows people in the field (on the set) to contact the authorities in their department or of the production before committing to a purchase or making controversial decisions. The present invention also allows a customized (per production) tiered approval system for time critical decisions.

As the day progresses, rehearsals are run for the planned scenes. During the course of rehearsals, script 100 changes may occur. Absent the present invention, these changes are noted by the script supervisor who includes them in the editor's set of notes for that day. The other people on the set do not generally have access to this information and if these pages are generated "on the fly," they are not a part of the script 100 that the departments will work with, since they were never officially published. Specific people with access privileges are able to input script 100 changes (script supervisor, director, production coordinator, for instance). These changes, are published for all the departments to see after being "submitted."

Script 100 pages have very strict formatting rules – once the script 100 is "locked", the pagination and scene numbers must remain the same. (For example, if additional dialogue is added to the middle of page 14, rather than have the end of page 14 spill over to page 15, a new page numbered "14A" is created. Thereby, the top of page 15 remains constant.) The present invention follows these formatting rules and adds automates the process. When a scene is added or omitted, the present invention calculates how each department is affected. (For example, if the scenes that are omitted are the only scenes in which the 1966 Mustang appears, the present invention notifies the vehicle department of this and flag this item as possibly no longer necessary. If a character is added to an existing scene but that scene is scheduled at a date after the wrap date of the actor playing that character, this is flagged immediately.) The present invention only notifies the persons needing to know of the change, thus reducing the amount of information provided a user, thus increasing manageability of the information.

The camera magazine is loaded in the camera truck and a set of duplicate bar codes is attached to that specific magazine. When the magazine is loaded onto the camera on set, the bar code is read into the assistant's PDA that then links that specific film roll to the camera report 150. Preferably, this is accomplished by a pen device that works with the PDA. The assistant inputs the magazine number and film stock number by accessing the drop down menus. The date is automatically entered into the report when the report is started (for instances of night shoots, if it is desired to consistently enter the same date after midnight, this is preset). The assistant can change the default footage (which would be a full magazine) to accommodate short ends (remainders of previously shot rolls that did not use the full amount). In a preferred methodology of the present invention, all of this data entry is automated by drop down menus and defaults to speed up the process.

As the setup is shot, the assistant camera man records the setup number and take number of each take. Absent the present invention, the script supervisor, the sound man, and the VTR man are all entering the exact same information at the same time. All but the VTR man are also keeping track of what takes are to be printed. Absent the present invention, the script supervisor, who receives the print information from the director, must relay this information to camera and sound. Often this exchange occurs at the end of the day and a lot of errors occur because people are tired and mis-mark their reports. Using the present invention, the setup and take information are submitted into the network 10 periodically during the day. Discrepancies are flagged and the last user who enters the conflicting data, as well as the script supervisor, are notified immediately. This allows errors to be found in a timely fashion. The script supervisor is ultimately responsible for prints so her data on the prints selection overwrites any areas of discrepancies. This is an example of a discrepancy checking ruleset with a hierarchical structure (i.e., a specified user's data will overrule other data"). However, a discrepancy report is nevertheless sent back to the specified key person and the user who generated the differing data. This allows the possibility of checking for errors in the key person's data. The scene and take fields are entered by the script supervisor who then post them to the network 10 , eliminating the need for the other users to enter this data. This is a work method choice by the individuals involved.

The above information (as well as additional data) is part of the lab and the telecine reports. Absent the present invention, these areas receive the camera and sound reports (the script's report is not completed in time to be shipped with the film) and must collate 160 the information from both reports that sometimes contain conflicting data. The present invention sorts out the discrepancies before the lab and telecine houses receive the reports. Importantly, the present invention allows the script supervisor's report 140 to be part of this process and be the final word in this area.

The take footages must also travel to the lab to enable them to find the selected takes that are to be printed. Sometimes the slate (the board that is held up and filmed before the take to visually identify that take) might have been incorrect or missed all together and the footages are all that the lab has to go on. Using the methods of the present invention, this information is already electronic, which shortens the lab's work. Each can of film is identified by it's own bar code. When unloading the film from the magazine, the bar code is physically taken from the

magazine and put onto the individual can. Each electronic report is linked to the physical film roll by the bar code. A shipping label is printed at the end of the day from the camera report 150 information. This enables the production to track individual rolls of film, since specific information on the film is included in shipping labels and reports.

Using the present methods , the lab receives the reports electronically before the physical film arrives. This allows the lab to prepare for the shipment by knowing the exact amount to be developed and printed, as well as the film stocks involved. This helps the lab schedule their baths and printing runs more efficiently.

In the present invention, the camera report 150 also includes developing and color timing instructions from the Director of Photography. In current practice without the methods of the present invention, the Director of Photography relays this information to the assistant and he writes this somewhere on the camera report by hand. The present invention allows the Director of Photography to enter the information himself at the end of the day. The Director of Photography is not aware of the number of the camera roll, so it is confusing at the end of the day if the DP (Director of Photography) says to the AC (Assistant Cameraman) "Make sure they time that the close-up (CU) of Mary in the school house scene for the shadows, not the highlights." This forces the AC to track down the script supervisor and ask her what that particular setup was numbered and then find it on his camera reports.

The script supervisor's notes are accessible in the global broadband network 10 so the DP can call up the scene and look at the take descriptions and input the instructions (if he so desires). The DP can think of this after the filming is wrapped for the day (and the film is shipped) and be sure that the lab has the instructions before the film is processed. In the current situation, absent the present invention, this requires panicked phone calls to the AC, who then must contact someone at the lab and then check the next day whether the developing information was actually passed on to the proper person.

Camera lens information is closely tracked of for every setup. Absent the present invention, the script supervisor must acquire this information from the camera department directly. This is be difficult since changes to the shot can occur right up to the actual shooting. The accuracy of the information can not be assured unless the information is received just before the camera rolls or after the setup. If the information is incorrect in the script right after the

setup, the assistant can easily forget the information as he concentrates on the new setup. (On some shoots the assistant also keeps track of this information, but the information must still be shared with the script supervisor.). Unfortunately, right after the setup is a time when the script supervisor is generally not available since she is interfacing with the other departments about the next setup or talking with the director. Thus, obtaining the lens information is a difficult process.

Using the methods of the present invention, however, the AC preferably enters the information in a PDA or other similar device. Once the information is submitted, it becomes part of the script notes. It is also possible for the script supervisor to enter the information if the assistant cannot enter the information. This is another instance of hierarchical discrepancy checking rule set, since the AC's information overrules the script supervisor's information. A discrepancy report is sent out to both individuals, allowing for entry error checking. The present invention also allows for single entry instead of double entry of the data and allows the script supervisor to use that information in her report as well as being able to call up the information when needed. Preferably, the present invention also provides precise lens and focal distance information used on the setup shots earlier in the day (in order to create matching shots, like close-ups). The script supervisor or AC calls up the setup numbers and the short descriptions of the shot.

The script supervisor is responsible for a very detailed set of information on each setup. One of the reports created by the script supervisor is the "facing page notes." These are notes that on specific setups that are inserted into the paper script opposite the script page on which the specific set up starts. Each setup includes: setup id (a number or number & letter), date shot, set, a short description for searches, a longer detailed description, camera information (lens, focal distance, filters used, frame rate), int/ext, the script supervisor records whether the setup rolled sound or not. For each take, the script supervisor records: take number, print/no print, length of the take, technical information (tail slate, frame rate (if it differs from other takes in the setup), false start, no slate, action changed, pick up, if the take started from a latter point than other takes), comments on the content of that specific take (actor seemed too angry, good for beginning, but director didn't like ending, light went out mid-take, lines said incorrectly, eyeline NG, as examples), the camera roll(s), and the sound roll, if any.

The present invention takes this data, the setup id, take number, print/no print, camera roll number, sound roll number, brief description and technical notes and includes the data in the lab

and telecine report. The sound man's report (setup id, take number, sound timecode, print/no print, sound roll number) also makes up the lab and telecine report. As this data from these departments is submitted into the global broadband network 10 periodically during the day, the data is checked for discrepancies that are flagged and sent to the proper people. A hierarchical structure specifies (per field) which user has the overwriting privilege. The discrepancy messages enable error catching.

Preferably, using the present invention, no one but the script supervisor enters the print information. The script supervisor works with a PDA or other device to create the basic template of the facing pages report which includes setup ID, take, int/ext, short description, set, date, MOS or sync, print/no print, technical information, camera roll and sound roll. This is automated with drop down menus. Every set in the movie can be called up by entering the first letter and then selecting the set. To enter the short description, one chooses from a drop down list of the type of shot (Master, CU, 2 Shot, MCU, LS, Medium Shot, ECU) and then another drop down list pulls up every character name to easily select. The date defaults to "today's date" (unless specifically set which can be done at the beginning of the day if it desired for the sheets to reflect the same date after the hour of midnight). The take number automatically increments when a new record in the same setup is created. The camera roll and sound roll defaults to the last entered roll number. The technical information is also a pull down list of choices – tail slate, pickup (and then a line number is enter), false start, 48fps, etc. Int/Ext, MOS/Sync are choices or one letter entries.

Preferably, the script supervisor does not have to enter the lens information, but has access to that information. Camera and sound have access to the print information if needed. Absent the inventive methods, part of the information entered into the facing pages notes consists of specific camera and sound notes, which the script supervisor must try to acquire on each setup and often cannot acquire because the script supervisor is busy checking continuity. Using the inventive methods , the camera and sound can enter and access this information immediately. (This is important because if there was a focus problem at the end of the take, the camera person might assume that the previous takes could be used for that portion.) Only the script person would know that the director was not happy with the ending of any of the previous takes, and was relying on the last take. With this information, the script supervisor could flag the director of this problem and another take could be shot before leaving the set.

The camera report 150 contributes to the film stock data as well as timing and developing notes to the lab and telecine reports. The sound report 160 adds to the sound timecode information. All of this information is synchronized to create one report which also generates the flex file 180.

The flex file 180 is the file that the telecine uses when they transfer film to tape. This file breaks the footage down into setup ID and take numbers and has the timecode of the tape that they are creating. Other information such as film key numbers are also contained in this file. This file travels with the tapes to the assistant editor who adds more information into this file before using it to digitize the dailies 230 into the electronic editing device Certain information in the flex file 180 (such as setup ID, take number, and the descriptions that the assistant editor has entered) is dumped into the electronic editing system. Absent the present invention, three people enter data that is used in the flex file 180, most of which is redundant. Often, because the data is not entered in the format that the assistant editor wants (who is working off of the script notes from the set), the assistant editor has to re-enter the same information. The present invention begins the creation of the flex file 180 on the set when the data is generated. This eliminates redundant entry and ensures a higher level of accuracy.

The script supervisor also generates the daily report 210 which contains the following information: (1) Scene information: Total in script 100, previously shot, Shot today, Shot to date, remaining to shoot. (2) Page Count Info: Total in script 100, previously shot, shot today, shot to date, remaining to shoot. (Each page is divided into 1/8s of pages, so a scene is considered to be 3/8's of a page long). (3) Timing (as in length) info: Total estimated length of the script 100, Length of time previously shot, Length of time shot today, remaining time, according to the original estimate. A constant tally of the variance between the time estimated for the scene in pre-production and the actual time of the shot scene is maintained and informs the script supervisor of the differences. These figures allow the producer to know if they are in the process of shooting an over or under length movie. When this information is available during the actual shooting portion of the production, it allows for corrections to be made to the script 100 (lengthening it or shortening it) or, for example, to correct the pacing of the acting (perhaps, overall, the performances are too languid) at the time of the shooting. This is a much more cost effect solution and is better for the final movie product, rather than randomly losing complete scenes during the editing process. (4) Setups: The number of setups taken each day is recorded

and a running total of the accumulated number of setups is kept. Each individual shot is considered a setup. The setup ID changes with each new shot with a notable exception. When multiple cameras are used, the setup ID is the same, but the camera roll numbers are different. (For example, there can be 5 setups 179B – take 2. The A camera is the master, the B Camera is the 2 shot, the C Camera is the Medium shot, the D Camera is the CU of Mark and the E Camera is the CU of Mary.) Absent the present invention, the script supervisor has to go through her notes carefully at the end of the day, being sure to include the multi-camera setups in her count. The present invention tracks this information for the script supervisor and constantly updates the network 10 .

All of the above information is required on the production report 220 and automatically becomes part of that report once submitted. This avoids redundant data entry. If there is a question on the values that have been entered, the script supervisor is questioned. Only the script supervisor can make these changes.

The Daily report 210 also includes the crew call, the first AM shot, lunch break time, 1st PM shot, Dinner break and camera wrap. This information is used for cost purposes. Besides the obvious calculation of the hours of the day from the call and wrap times, subtracting meal breaks, this information also calculates meal penalty information. If there is a longer time period than 6 meals between call and a meal or between meals, then a penalty incurs. The Production report 220 is automatically populated with this data which, when submitted, populates the daily cost report 310 where calculation of this data turns into currency figures.

The Daily report 210 (without the global broadband network 10) includes the film stock shot that day, and the camera roll numbers, as well as the sound rolls numbers and any wild track numbers. This information is currently put on the daily report 210 for the purpose of the production report 220, but is not necessary to the function of the script supervisor. The global broadband network 10 obtains this information from the sound department and camera department and automatically populates the production report 220 with this data. The script supervisor accesses the information if desired, but does not have the responsibility of entering the information.

The daily report 210 lists the scenes shot, with a description of the set and action, the length of the scene as shot, the number of pages created, and whether or not the scene was

completed. The script supervisor has the list of the planned scenes for the day from the schedule 120 data and modifies it if required (if an additional scene were taken that day, for example). If the script supervisor marks the scene as complete, the full amount of the page is credited and added to the total for the day – or if it were a scene that had previously been partially completed, the global broadband network 10 only adds the remaining uncredited page count. If the script supervisor marks it as partial, the page count for the total scene as well as any credit previously assigned is displayed. The script supervisor then enters the amount of the page count that is considered to have been covered that day. At any point, after the script supervisor has submitted this information, the information is accessible by users with the permission to do so, which helps others access the progress of the day. Many times a "lunch report" is required, which is a shortened report for the studio which indicates what the progress of the day is as of lunch. This includes scenes finished, page count accrued, length shot, setups so far, and first AM shot. Absent the present invention, this requires a runner to the production office or a phone call to pass the data to the coordinator who will relay the information to the studio. With the global broadband network 10 , when the production breaks for lunch, the coordinator calls up the information immediately on a computer.

The daily report 210 also contains any "pickups" (shots of scenes already counted as complete) and "retakes" (specific shots that are redone). When the script supervisor creates facing pages, she indicates if the set up fits into this category so it is automatically included in the daily report 210.

The script supervisor works with a PDA and a laptop or other similar configuration. This allows her to start the reports between takes and after hot syncing to the laptop, finishes any of the more type-intensive portions of the reports with a bigger keyboard. The PDA also allows her to instantly access the information coming from the sound and camera departments.

The information from the script supervisor, the camera department, and the sound department found in the production report 220 is only viewable by selective users. When the data is collected for the production report 220 and the AD has checked it (the AD's department also adds data to this report), he "submits" the data to the next level. This allows the production manager to view the document with digital signatures. The production manager can request changes and sends these requests (or requirements) to the various departments responsible for the data. These users make the changes and inform the production manager accordingly. The

production manager signs off on the document and send it to the producer and the accounting departments. These users view the document and send it back for corrections or sign off on the document. At this point, the production report 220 is submitted to the studio. The methods of the present invention set the permission levels of users at the start of the production, but these can be changed at any point during the production if the customer so requires.

The AD's portion of the production includes the signing in and out of actors. Using the inventive methods, the actors are automatically added to the day's production report 220 that lists the scenes (which automatically comes from the call sheet 130 that comes from the schedule 120). The scene identification then accesses the actor breakdown and lists those required that day into the production report 220. Their "in times" are taken from the their call times on the call sheet 130. Absent the present invention, when an actor leaves the set for the day (which occurs at various points during the day), the assistant director must find the actor and have them sign a form. The present invention uses a digital signature to achieve this result. The AD has a PDA, or other similar device, into which data is entered. The AD has another PDA that contains the digital signatures of all the actors. This PDA is preferably encrypted so it only interfaces with the AD's PDA. The actor enters his private password into the signature PDA and "beams" his signature to the AD's PDA. The signature data is "time stamped" on transfer and used to calculate the actor's "out time 300." When the production report 220 is sent to the accounting department, the global broadband network 10 accesses the actor's contract and calculates the cost for that day.

The production report 220 is also used to report the crew "in and out times 290" of the crew. The present invention automatically populates the report with the crew members' names and their "in times," which are taken from the call sheet 130. Absent the present invention, the AD has to find each crew member as they are leaving the set to learn their "out times 290," since different departments finish at different times after wrap. Often, this information is not received until the following day, when he will ask the crew member what time they wrapped the night before. If the AD guesses the times on the report, and these guesses are incorrect, not only will the daily cost reports be incorrect, but there will be a problem when the payroll company gets the crew member's timecard which differs from the production information.

The payroll company cannot adjust a worker's timecard, so this causes a delay in the process while the discrepancy is checked. The methods of the present invention allow the

departments to enter their "out times 290" into the computer as they finishing for the day. Not only is the information timely (no waiting until the next day) but the information is accurate, since the information comes from the crew member himself. The present invention at this point starts the timecard report, which means the crew member does not have to manually keep a list of his times that week, since that information always resides locally on his computer. At the end of the week, the crew member enters that day's "out time 300" and generates the timecard which is sent directly to the accounting department where the global broadband network 10 generates the payroll 280.

Absent the present invention, when the production report 220 goes into accounting, they must manually translate the information on the report into costs. The present invention performs this task automatically, saving the accounting department a great deal of work. The invention also inputs these costs into a cost report 310 that checks for variances between actual costs and budgeted costs. The invention flags these variances.

The AD is also responsible for the call sheet 130. While the production report 220 is a reflection of today's costs, the call sheet 130 is the projection of tomorrow's costs. The call sheet 130 typically contains information on the scenes that will be shot the next day, the page count of those days, the story days involved, the sets involved, the locations involved, the cast needed, a list of extras needed, a very brief breakdown of necessary props, wardrobe, etc, and the advance schedule. On the back of the call sheet 130, each crew member is listed and their specific call time is given. General notes, such as "bring wet weather gear since we will be producing rain effects" can also appear.

Absent the present invention, the AD inputs all this information separately. The present invention creates the call sheet 130 automatically. Since the schedule 120 already exists, the global broadband network 10 pulls the scenes meant to be shot for that day. If there was a scene that was not finished the day before, that also automatically appears on the call sheet 130. The page count information is accurate since the present invention keeps track of any partial page count (without the present invention, it is rare that call sheets 130 that reflect partial scenes show accurate page count). All the script breakdowns 110 for the scheduled scenes are accessible because the present invention references everything by scene. Therefore, the actors and their character names which are needed are automatically listed. Absent the present invention, the limited "breakdown 110" information that appears on the call sheet 130 comes from the AD's

breakdown 110 and is not extensive. However, the present invention is able to populate the report with each department's actual breakdown 110 (which makes the document much more meaningful). The props listed reflects the props that actually will be used, rather than the AD's concept of what might be used. The advance schedule also appears automatically.

Using the present invention, all the crew is listed automatically on the call sheet 130 and a global call time is set. The AD changes individual calls times manually if he wants a department or person to come in earlier or later. However, the present invention allows the AD to create specific rule sets (such as "the call for the assistant cameraman is always ½ hour earlier than the main call, unless doing so puts him in turnaround"). This way, such alterations appears automatically, as well as preventing inadvertent turnaround invasion.

Absent the present invention, the call sheet 130 is not published until camera wrap, since the call time is often not determined until then. However, it is helpful for departments to view this document earlier, to start planning for the next day. This is often not allowed because of the fear of alternate versions of the call sheet 130 being in circulation that could cause confusion as to the real call time. The present invention, however, allows the departments access for viewing this document during the day as the call sheet 130 is formulated since it is clearly marked as a non-official version. When the call sheet 130 is officially published, the global broadband network 10 clearly marks the call sheet 130 as published. This can't be done without the present invention since the production is relying on a paper based system, and therefore waits until the last minute to make the necessary copies. If the call sheet 130 is printed prematurely, each call sheet 130 has to be manually marked with a notation such as "All calls pushed ½ hour" if things change. Sometimes, two versions of the call sheet 130 are printed up, ready to distribute, and the time that the company wraps determined which call sheet 130 is used. However, this runs the risk of the wrong call sheet 130 getting into circulation and causing confusion.

Absent the present invention, the call sheet 130 must be approved by the production manager. This requires that a courier delivers the AD's version to the office for the production manager's perusal and then returns it to the set. The AD's version is then sent back again to make the copies for distribution. The present invention submits the call sheet 130 directly from the field to the production manager in the office who annotates it and sends the call sheet 130 back to the AD. This allows for greater communication between the AD and the production manager, and facilitates more informed decisions being made.

The present invention distributes the call sheet 130 to each department and indicates those users' call time at the top of the sheet. Thus, individuals don't have to search through the crew list for their specific call time. Absent the present invention, it is easy to mistakenly identify one's own call time if it differs from the majority.

In other preferred exemplary methodologies, the present invention uses a networked global broadband network 10 that is specifically tailored for use with businesses which include, but are not limited to, tele-medicine, oil and gas exploration, international construction, disaster relief, and distance learning/education. A preferred methodology of the present invention aids these industries in issues of mobility, data transmission and management, collaboration, security, access control, data verification, synchronization and replication, and ease of use, as well as other issues.

Specifically, in tele-medicine, uses of preferred exemplary methodology include tele-radiology, which involves digital medical images (CAT scans, CT scans, mammography, PET scans and the like). Other tele-medicine applications include remote consultations, which involve videoconferencing with collaboration and markup of medical images and real-time remote diagnostics data from medical instruments. Further, still other tele-medicine applications include nomadic medicine, which involves mobile care with specialist consultations. In this regard, medical images are shared with remote specialists. In oil and gas exploration, a preferred methodology of the present invention preferably takes seismic readings, images, and data on site at a potential drilling location and transmits this information for expert analysis. Images, video, and other data created during the oil excavation process are shared with engineers, executives, or specialists at various locations.

Additionally, in the international construction arena, a preferred methodology of the present invention is preferably utilized for site surveys, architectural drawing, engineering blueprints, and project scheduling software. While in disaster relief, a preferred methodology of the present invention is utilized preferably for logistical data procurement and the tracking of vital supplies, remote communications, and services. Finally, in distance learning/education, a preferred methodology of the present invention is preferably utilized for multimedia distribution, access, and real-time collaboration, including videoconferencing and data dissemination.

Moreover, many aspects of the present invention that have been discussed above in the context of entertainment production are applicable in other markets as well. These include multimedia content management and distribution, management and distribution of data, security with need to know access, and replication and synchronization of data in multiple geographically dispersed locations. Preferably, data is accessed through a web browser, allowing for ease of use. Input data in each of these scenarios is checked for validity against a set of business rules, as well as against other correlated data. Any discrepancies are highlighted to the appropriate person or people for quick resolution. These other markets may also utilize the communications services being offered to the entertainment production industry, including videoconferencing, real-time video, telephony over satellite, and Internet access. Images and video relevant to each of these industries are also able to be shared and discussed in real-time with versions of the annotation and collaboration tools being created for entertainment production.

Although the invention has been described in language specific to computer structural features, methodological acts, and by computer readable media, it is to be understood that the invention defined in the appended claims is not necessarily limited to the specific structures, acts, or media described. Therefore, the specific structural features, acts and mediums are disclosed as exemplary methodologies implementing the claimed invention.

Furthermore, the various methodologies described above are provided by way of illustration only and should not be construed to limit the invention. Those skilled in the art will readily recognize various modifications and changes that may be made to the present invention without following the example methodologies and applications illustrated and described herein, and without departing from the true spirit and scope of the present invention, which is set forth in the following claims.

WHAT IS CLAIMED IS:

1. A method for gathering, manipulating, and efficiently disseminating data through a meshed network of data collection nodes and at least one transmission/reception medium, at least one data collection node being positioned at a remote location, the method comprising:

collecting data from at least one remotely located data collection node in the meshed network and storing said data in at least one other remotely located node in the network;

validating data upon entry into a data collection node of the network;

checking data entered from one or more remotely located nodes in the network for discrepancies and notifying appropriate users in the network if discrepancies are detected;

intelligently sorting, filtering, and linking the data; and

distributing data across the network to at least one remote location, wherein at least one remotely located data collection node is nomadic.

2. The method of claim 1, wherein the meshed network comprises a private, high security network.

3. The method of claim 1, wherein the meshed network comprises a global broadband network.

4. The method of claim 1, wherein criteria for distributing data across the network to at least one remote location is selected from a group consisting of user identification, hardware identification, data clearance level, and data release authority.

5. The method of claim 1, wherein the data managed by the network is selected from a group consisting of information, text, voice, audio, video, images, and their digital counter parts.

6. The method of claim 1, wherein the transmission/reception medium comprises at least one satellite.

7. The method of claim 1, wherein data is collected and distributed at least partially by at least one transmission/reception medium selected from a group consisting of fiber optic cables, modems, cable modems, cable routers, digital subscriber lines (DSL), asymmetrical digital subscriber lines (ADSL), T1 (or fractions thereof), T2 (or fractions thereof), T3 (or fractions thereof), local area networks (LAN), wide area networks (WAN), microwave networks, line of sight lasers, intranets, and the Internet.

8. The method of claim 1, wherein data is collected and distributed by a combination of transmission/reception mediums selected from a group consisting of fiber optic cables, modems, cable modems, cable routers, digital subscriber lines (DSL), asymmetrical digital subscriber lines (ADSL), T1 (or fractions thereof), T2 (or fractions thereof), T3 (or fractions thereof), local area networks (LAN), wide area networks (WAN), microwave networks, line of sight lasers, intranets, and the Internet.

9. The method of claim 1, wherein the data managed by the network is selected from a group consisting of film and television production, pre-production, and post-production data.

10. The method of claim 1, wherein data managed by the network is medical related data.

11. The method of claim 1, wherein the network utilizes a browser based interface with at least one remote location for standardization across platforms.

12. The method of claim 1, wherein the network includes broadband satellite links for transmitting text, data, and still and moving images at high-definition and standard definition resolutions.

13. A method for providing collaborative business efforts across a global meshed network of data collection nodes, at least one data collection node being positioned at a remote location, the method comprising:

(a) gathering data from at least one collection node and storing data within at least one other collection node, wherein at least one or the other of the collection nodes is positioned at a remote location;

(b) manipulating data within at least one collection node; and

(c) disseminating data from at least one collection node to at least one other collection node, wherein at least one or the other of the collection nodes is positioned at a remote location, and wherein at least one data collection node is nomadic.

14. The method of claim 13, wherein the meshed network comprises a private, high security network.

15. The method of claim 13, wherein the meshed network comprises a broadband network.

16. A method for providing collaborative business efforts through rental of a global meshed network that includes at least one remote location, the method comprising:

providing a global broadband network;

providing data collection capability, wherein data is collected from at least one remote location in the meshed network and stored in another location in the network;

providing data validation capability, wherein data is validated upon entry into the network;

providing data checking capability, wherein data entered from different locations in the network is checked for discrepancies;

providing intelligent sorting, filtering, and linking of data; and

providing data distribution across the network to at least one remote locations.

17. The method of claim 16, wherein the meshed network comprises a private, high security network.

18. The method of claim 16, wherein the meshed network comprises a broadband network.

19. The method of claim 16, wherein at least one remote location in the network is nomadic.

20. A method of providing bundled telecommunication services to remote locations within a global, meshed network of nodes for collaborative business efforts, the method comprising:

(a) gathering data from at least one node positioned at a remote location;

(b) manipulating data within at least one node; and

(c) disseminating data from at least one node to at least one other node, wherein at least one or the other of the nodes is positioned at a remote location, and wherein at least one node is nomadic

21. The method of claim 20, wherein the meshed network comprises a private, high security network.

22. The method of claim 20, wherein the meshed network comprises a broadband network.

23. A method of building dependencies within reported data in a meshed network which includes remote locations, the building of dependencies providing for at least one of the group selected from collaborative business efforts and data management, the method comprising:

intelligent scanning incoming data from a remote location in the network;

sorting and analyzing incoming data to create distinct, processed outgoing data; and

creating customized data linkages, wherein data in the network dynamically builds dependencies to other data within the network, and wherein at least one remote location in the network is nomadic.

24. The method of claim 20, wherein the meshed network comprises a private, high security network.

25. The method of claim 20, wherein the meshed network comprises a global, broadband network.

26. The method of claim 20, wherein at least one remote location in the network is nomadic.

FIG. 1

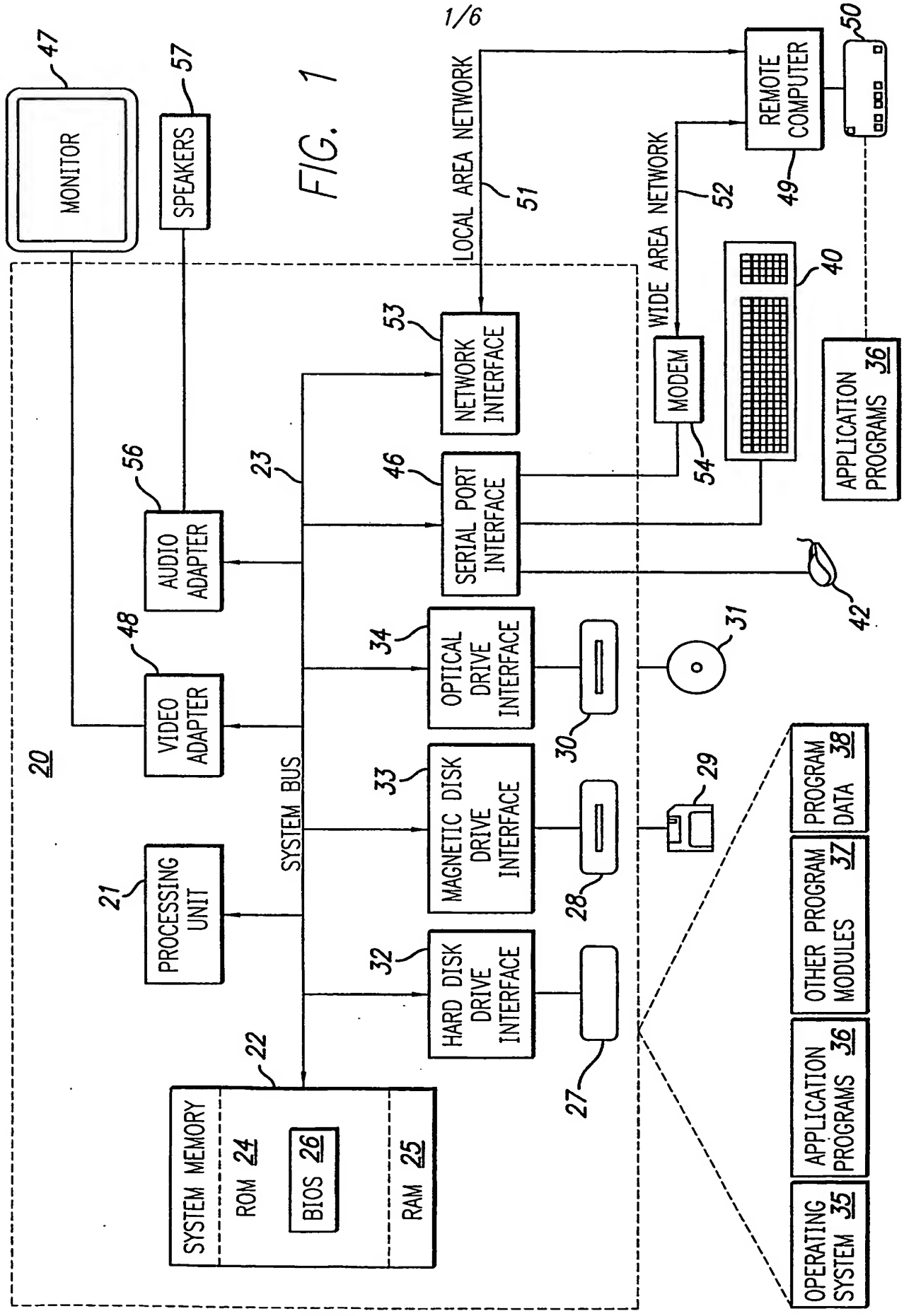

FIG. 2

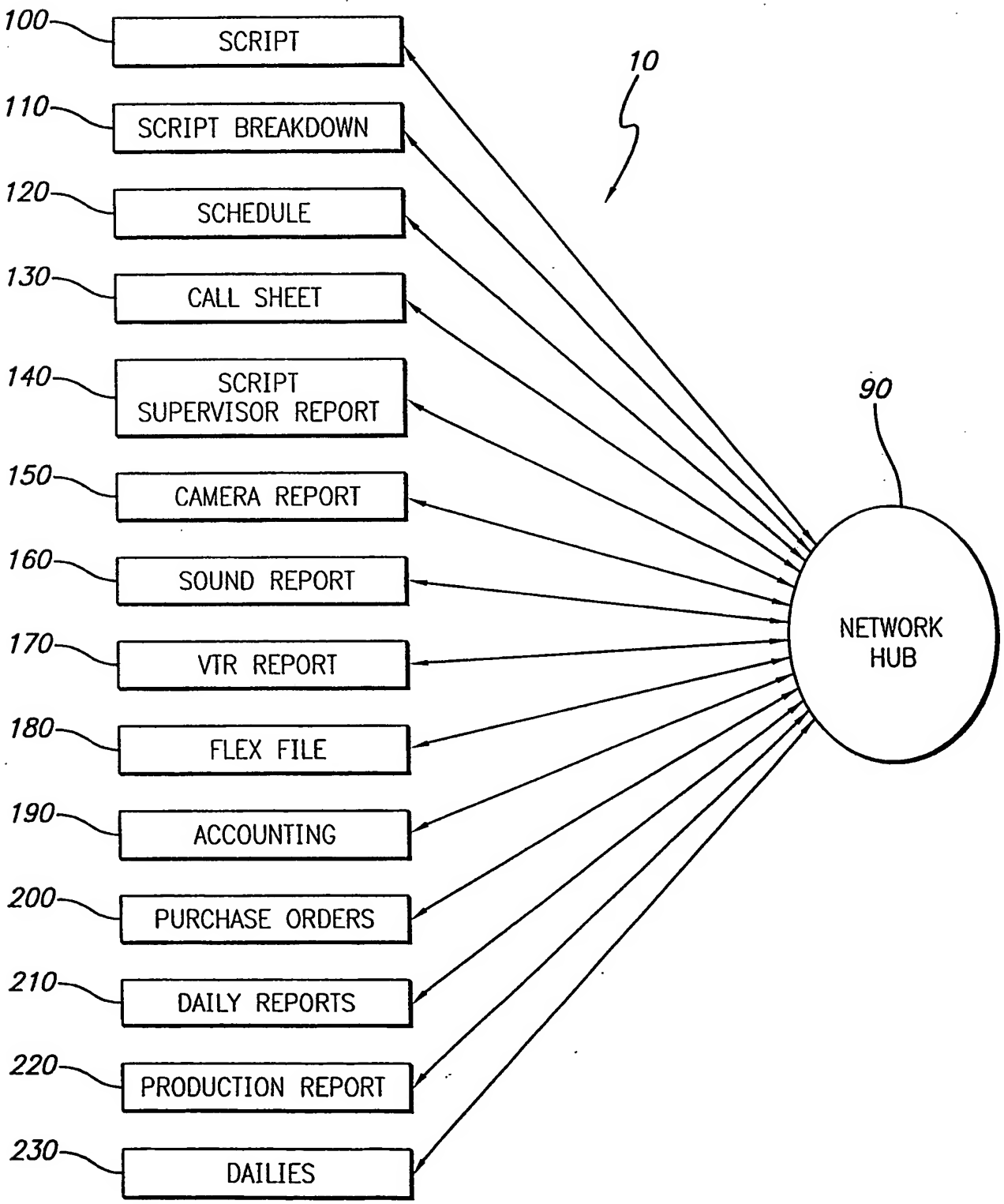

FIG. 3

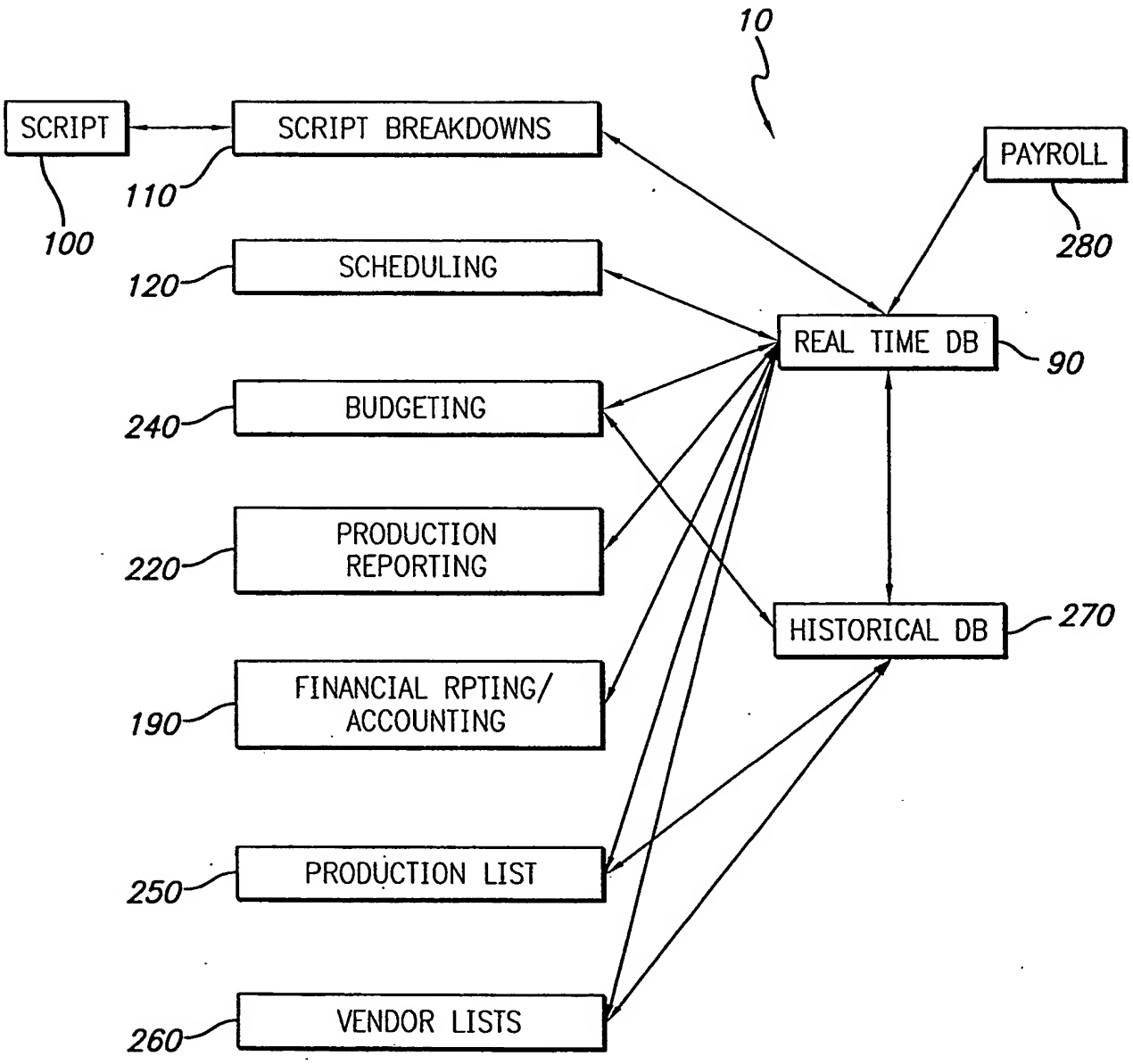

FIG. 4

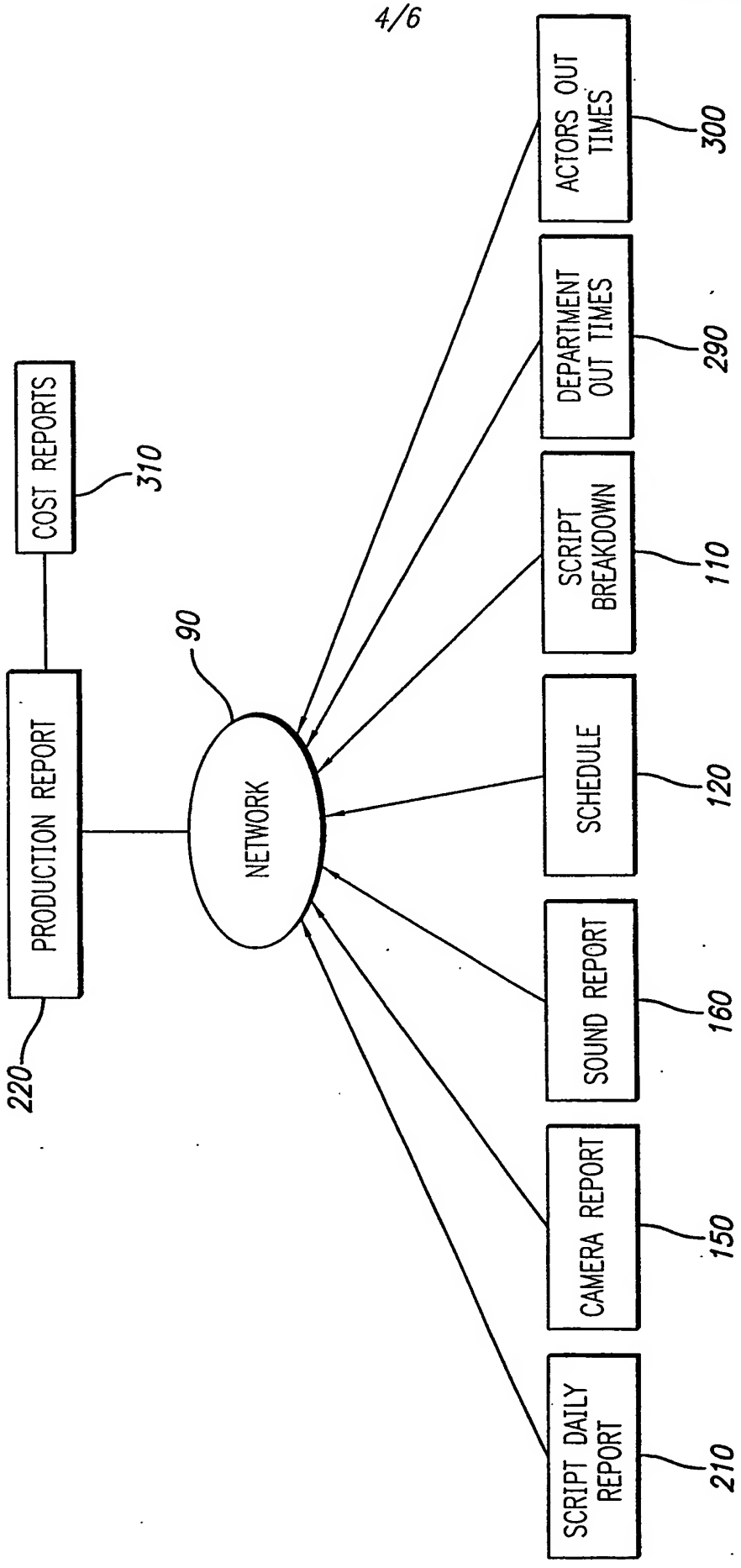

FIG. 5

ACCESS LEVEL	DATA GROUP 1	DATA GROUP 2	DATA GROUP 3	DATA GROUP 4	. . .
1	ALLOW		1 WEEK	DENY	
2	ALLOW	1	1 WEEK	DENY	
3	ALLOW	2	3 DAYS	DENY	
4	ALLOW	2	2 DAYS	ALLOW	
5	ALLOW	3	IMMEDIATE	ALLOW	
DATA GROUP 1 & 4 INDICATE FULL ACCESS IS EITHER ALLOWED OR DENIED					
DATA GROUP 2 INDICATES SEQUENTIAL ACCESS WITH 3 LAYERS					
DATA GROUP 3 INDICATES AGING ACCESS CONTROL					

320

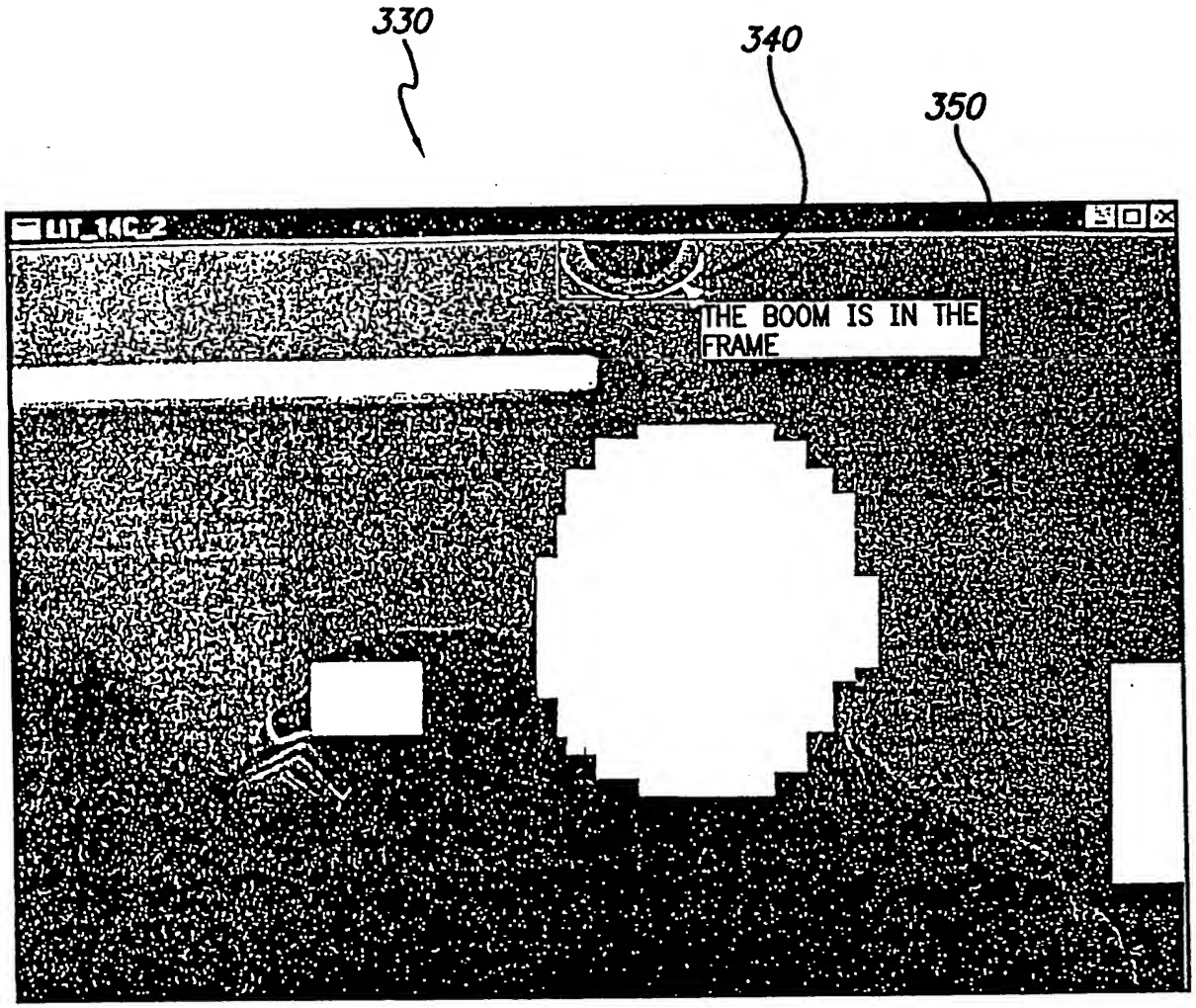

FIG. 6

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(54) Title: ETHOD FOR NETWORKING DATA AND CONTENT MANAGEMENT

(57) Abstract:

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PATENT COOPERATION TREATY

PCT

DECLARATION OF NON-ESTABLISHMENT OF INTERNATIONAL SEARCH REPORT

(PCT Article 17(2)(a), Rules 13ter.1(c) and Rule 39)

Applicant's or agent's file reference	IMPORTANT DECLARATION	Date of mailing *(day/month/year)*
10281/20		03/07/2003
International application No.	International filing date *(day/month/year)*	(Earliest) Priority date *(day/month/year)*
PCT/US 01/23742	27/07/2001	28/07/2000
International Patent Classification (IPC) or both national classification and IPC	G06F17/60	
Applicant		
NETUNE COMMUNICATIONS, INC.		

This International Searching Authority hereby declares, according to Article 17(2)(a), that **no international search report will be established** on the international application for the reasons indicated below

1. [X] The subject matter of the international application relates to:
   - a. [ ] scientific theories.
   - b. [ ] mathematical theories
   - c. [ ] plant varieties.
   - d. [ ] animal varieties.
   - e. [ ] essentially biological processes for the production of plants and animals, other than microbiological processes and the products of such processes.
   - f. [X] schemes, rules or methods of doing business.
   - g. [ ] schemes, rules or methods of performing purely mental acts.
   - h. [ ] schemes, rules or methods of playing games.
   - i. [ ] methods for treatment of the human body by surgery or therapy.
   - j. [ ] methods for treatment of the animal body by surgery or therapy.
   - k. [ ] diagnostic methods practised on the human or animal body.
   - l. [ ] mere presentations of information.
   - m. [ ] computer programs for which this International Searching Authority is not equipped to search prior art.

2. [ ] The failure of the following parts of the international application to comply with prescribed requirements prevents a meaningful search from being carried out:
   - [ ] the description
   - [ ] the claims
   - [ ] the drawings

3. [ ] The failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions prevents a meaningful search from being carried out:
   - [ ] the written form has not been furnished or does not comply with the standard.
   - [ ] the computer readable form has not been furnished or does not comply with the standard.

4. Further comments:

Name and mailing address of the International Searching Authority	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Olga Benitez

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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 203

The claims relate to subject matter for which no search is required according to Rule 39 PCT. Given that the claims are formulated in terms of such subject matter or merely specify commonplace features relating to its technological implementation, the search examiner could not establish any technical problem which might potentially have required an inventive step to overcome. Hence it was not possible to carry out a meaningful search into the state of the art (Art. 17(2)(a)(i) and (ii) PCT; see Guidelines Part B Chapter VIII, 1-6).

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.